Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An ultra-fine fibrous carbon characterized by stacking of carbon hexagonal planes having one or double directional growth axis.

wherein (1) carbon content is more than 95wt%; (2) the diameters range from 3.5 to 79.9 nm; (3) the aspect ratio (length per diameter) is more than 20; and (4) the carbon hexagonal planes align perpendicular to the fiber axis with no continuous hollow core therein.

- 2. (Canceled)
- 3. (Currently Amended) A fibrous carbon of claim 1 An ultra-fine fibrous carbon characterized by stacking of carbon hexagonal planes having one or double directional growth axis, wherein
- (1) carbon content is more than 95wt%; (2) the diameters range from 3.5 to 79.0 nm; (3) the aspect ratio (length per diameter) is more than 20; and (4) the carbon hexagonal planes align having $5 \sim 65^{\circ}$ angle to the fiber axis with no continuous hollow core therein.
- 4. (Currently Amended) A method for producing a fibrous carbon of claim [[2]] $\underline{1}$, characterized by the steps of using carbon black-supported metal mixture or alloy catalysts, wherein the metal mixtures or alloys involve nickel as a major catalyst, and iron or molybdenum as secondary metals; the carbon black is characterized by less than $100\text{m}^2/\text{g}$ BET-surface area, $20 \sim 60$ nm particle size, and more than 10wt% oxygen content; and the carbon black-supported catalyst contains $0.1 \sim 60\text{wt}\%$ metal mixture or alloy per carbon black; and

of the carbon source being introduced at the flow rate of $0.5 \sim 40$ sccm per 1 mg catalyst in the furnace, where the carbon source involves hydrocarbons containing $2 \sim 6$ carbon atoms or mixtures of aforementioned hydrocarbons and hydrogen.

5. (Original) A method for producing a fibrous carbon of claim 3, characterized by the steps of using carbon black-supported metal mixture or alloy catalysts, wherein the metal mixtures or alloys involve nickel as a major catalyst, and iron or molybdenum as secondary metals; the carbon black is characterized by less than $100\text{m}^2/\text{g}$ BET-surface area, $20 \sim 60$ nm particle size, and more than 10wt% oxygen content; the carbon black-supported catalyst contains $0.1 \sim 60\text{wt}\%$ metal mixture or alloy per carbon black; and

of the carbon source being introduced at the flow rate of $0.5 \sim 40$ sccm per 1 mg catalyst in the furnace, where the carbon source involves hydrocarbons containing $2 \sim 6$ carbon atoms or mixtures of aforementioned hydrocarbons and hydrogen.

6. (Original) A method according to claim 4, wherein

the hydrogen partial pressure in the mixture of hydrocarbons and hydrogen is selected between $0 \sim 80 \text{v/v}$ %; the production temperature is selected between $300 \sim 499^{\circ}\text{C}$; and the production time is selected between $2 \text{ min} \sim 12 \text{ h}$.

7. (Original) A method according to claim 5, wherein

the hydrogen partial pressure in hydrocarbons and hydrogen mixtures is selected between $0 \sim 80 \text{v/v}$ %; the production temperature is selected between $300 \sim 499$ °C; and the production time is selected between $2 \text{ min} \sim 12 \text{ h}$.

8. (Original) A method according to claim 4, whereby

the carbon black-supported catalyst is alternatively treated as follows: oxidation to contain less than 1wt% carbon black at $300 \sim 500^{\circ}$ C in oxidative gas containing $5 \sim 40v/v\%$ oxygen or carbon dioxide in inert gases such as nitrogen, argon or helium; and repetitive reduction by $1 \sim 3$ times in gas mixtures of $5 \sim 40v/v\%$ hydrogen in nitrogen, argon or helium at $400 \sim 500^{\circ}$ C for $1 \sim 48$ h.

9. (Original) A method according to claim 5, wherein

the carbon black-supported catalyst is alternatively treated as follows: oxidation to contain less than 1wt% carbon black at $300 \sim 500^{\circ}$ C in oxidative gas containing $5 \sim 40v/v\%$ oxygen or carbon dioxide in inert gases such as nitrogen, argon or helium; and repetitive reduction by $1 \sim 3$ times in gas mixtures of $5 \sim 40v/v\%$ hydrogen in nitrogen, argon or helium at $400 \sim 500^{\circ}$ C for $1 \sim 48$ h.

- 10. (Original) A method according to claim 8, wherein said alloy according to the alloy kind is composed of 0.1/0.9 ~ 0.95/0.05(wt/wt) of Ni/Fe; 0.05/0.95 ~ 0.95/0.05(wt/wt) of Ni/Co; and 0.1/0.9 ~ 0.9/0.1(wt/wt) of Ni/Mo.
- 11. (Original) A method according to claim 9, wherein said alloy according to the alloy kind is composed of 0.1/0.9 ~ 0.95/0.05(wt/wt) of Ni/Fe; 0.05/0.95 ~ 0.95/0.05(wt/wt) of Ni/Co; and 0.1/0.9 ~ 0.9/0.1(wt/wt) of Ni/Mo.